REMARKS

Claims 1, 4, 7, 14, 15, 17, and 18 are not obvious over Corazza and Fong

The Patent Office explicitly acknowledges that Corazza does not teach adjusting the power headroom threshold of a mobile station—see p. 2 of the current Office Action. Instead, Corazza is relied upon for its alleged varying of reverse link data rates at a mobile station, based on load indications sent from a base station. To make the obviousness rejection, the Patent Office states that Fong teaches that trigger parameters are sent between a base station and a mobile station, **including messages to cause a power headroom to increase or decrease**. (Emphasis added.) On p. 3 of the current Office Action, the Patent Office argues that combining these teachings in Fong would result in Corazza's load indications and rate changes including power headroom changes, and that **increasing or decreasing the headroom changes the threshold to allow for larger or smaller headroom for the mobile to use for a data rate**. (Emphasis added.)

First, these findings of fact are erroneous. Fong's base station sends messages to a mobile station that, among other things, identifies the change (delta) in power headroom at the mobile station that is to trigger a reverse request message to be sent from the mobile station. Because rate control of the mobile station depends on its power headroom, it is important for the base station to receive power-related information from the mobile station—see paragraph [0041] in Fong. Thus, Fong's base station sends messages to the mobile station that tell the mobile station to trigger a new reverse request message (with power information in it) whenever the mobile station's power headroom changes by a certain amount up (REV_PDCH_POWER_HEADROOM_INCREASE), or by a certain amount down (REV_PDCH_POWER_HEADROOM_DECREASE). See paragraphs [0044]-[0048] in Fong, and see the flow diagrams in Figs. 2 and 3 of Fong.

In direct contrast to the Patent Office's stated finding of fact that these messages cause power headroom increases or decreases, these trigger message are plainly and clearly described as simply setting trigger points so that the mobile station informs the base station whenever the mobile station's power headroom changes up or down more than the amount specified in the message. These trigger points do not establish or adjust the **power headroom threshold** of Fong's mobile station, which the instant application and amended claims **define as the amount of transmit power reserved at the mobile station for making data retransmissions under Automatic Repeat reQuest (ARQ) control**. Indeed, Fong does not teach or suggest reserving some minimum amount of power headroom, and never discusses power headroom thresholds, nor does Fong anywhere discuss ARQ operations.

Thus, combining Fong with Corazza does not result in Corazza adjusting the power headroom thresholds of its mobile stations. Instead, to the extent that one could or would make the combination, it would appear to result in nothing more than Corazza's base stations sending trigger messages to their mobile stations, to ensure that the mobile stations keep the base stations timely updated regarding the amount of power headroom actually available at the mobile stations. Such operations have no direct relevance to mobile stations determining the amounts by which to adjust their power headroom thresholds based on receiving reverse link loading indicators, where those thresholds represent a strategic and dynamically adjusted reservation of power headroom for use in ARQ operations.

The Patent Office's further key finding of fact, namely that increasing or decreasing the (power) headroom changes the (power headroom) threshold to allow for larger or smaller headroom for the mobile to use for a data rate. This statement is demonstrably false because (1) Fong does not teach that a base station uses messages to increase or decrease the power headroom of a mobile station; and (2) the power headroom of a mobile station naturally decreases or increases responsive to changing channel conditions and data rates, and changes

in the actual power headroom during live operation of the mobile terminal are independent of the power headroom threshold at issue in the present claims.

Again, claims 1 and 14, as clarified in the amendments, stipulate determining an amount by which to adjust a power headroom threshold of the mobile station, based on said load indication, wherein said power headroom threshold defines the amount of transmit power reserved at the mobile station for making data retransmissions under Automatic Repeat reQuest (ARQ) control, and adjusting the power headroom threshold of the mobile station according to said determined amount. And the filed application makes clear that the power headroom threshold represents a value that is set by the mobile station that dictates the minimum amount of power headroom that the mobile station will operate with, so that it has sufficient reserve power for making ARQ retransmissions.

Corazza is silent with respect to power headroom thresholds, and so is Fong. Indeed, Fong never identifies that a mobile station might operate with a defined power headroom threshold. Instead, Fong simply teaches configuring a mobile station (by way of base station messaging) to report changes in the actual power headroom of the mobile station. Fong is utterly silent regarding power headroom thresholds, and does not discuss ARQ operations. As such, the combination of Fong and Corazza, even if the combination would have been obvious, does not teach or suggest the claim limitations which are explicitly and clearly presented in claims 1 and 14, nor the further limitations presented in the various claims depending from claims 1 and 14.

Further, the rejection arguments clearly and repeatedly misidentify the power headroom threshold at issue in the claims as being the same or equivalent to the actual power headroom of a mobile station. See the rejection of claim 15, for example. As regards claim 15, the Patent Office states at the bottom of p. 3 in the current Office Action that Corazza teaches that the **power headroom threshold** limits the data transmission rate of a mobile station, because the

data rate is based on the available power headroom. Corazza never mentions power headroom thresholds. Adjusting the reverse link data rate of a mobile station as a function of the available power headroom of the mobile station is not the same thing as adjusting a power headroom threshold at the mobile station, where that power headroom threshold defines the amount of transmit power reserved at the mobile station for making data retransmissions under Automatic Repeat reQuest (ARQ) control. Thus, when claim 15 stipulates that the power headroom threshold limits the data transmission rate of the mobile station, it means that it sets a limit below the maximum power of the mobile station, which defines the extent to which the mobile station can increase its transmit power for achieving higher data rates.

As such, as regards independent claims 1 and 14, and dependent claims 15 and the others, the prior art does not teach all of the claim limitations. Therefore, this is not a case where Applicant has simply made an obvious combination of known elements to achieve predictable results. The cited references clearly do not teach or suggest the claim limitations at issue, nor anything remotely equivalent to those limitations. Consequently, the Patent Office has not established a *prima facie* case of obviousness and the rejections based on Corazza and Fong should be withdrawn.

Claims 2, 3, and 16 are not obvious over Corazza, Fong, and Gopalakrishnann

Gopalakrishnann is relied upon for its alleged teachings regarding the use of upper-layer messages to provide signaling to mobile stations. (Claim 2 stipulates that load indications are received at the mobile station in upper layer messages, and claim 3 stipulates receiving those messages over a common channel.)

Arguing for the combination of Gopalakrishnann with Corazza and Fong overlooks the fact that Corazza and Fong do not teach the use or adjustment of power headroom thresholds as set forth in the claims. Thus, irrespective of whether Gopalakrishnann can be understood as

providing upper-layer signaling teachings that might somehow be used in Corazza and Fong, the three-way combination does not teach or suggest the limitations of the independent claims at issue, nor their further dependent claims.

Claims 8, 9, 19, and 20 are not obvious over Corazza in view of Sintonen and Lakkakorpi

First, claims 8 and 9 depend from independent claim 1, and claims 19 and 20 depend from independent claim 14. It is therefore plain error for the Patent Office to reject these dependent claims as obvious using a combination of references that does not at least include the same combination of references as were alleged to make the independent claims obvious. Specifically, the rejection of claims 8, 9, 19, and 20 excludes Fong, although the Patent Office clearly relies critically on Fong to argue the obviousness of independent claims 1 and 14.

The rejection of claims 8, 9, 19, and 20 is therefore ill-posed and should be withdrawn for this reason alone.

Second, the rejection of claims 8, 9, 19, and 20 use of the "Sintonen" reference was thoroughly discredited in Applicant's pre-appeal brief review arguments, submitted on 5 Oct. 2009. The Patent Office declined to pursue the examiner's Sintonen-based rejections in the appeal process, no doubt because Sintonen's teachings are plainly and unambiguously not related to transmit power headroom or transmit power headroom thresholds at a mobile station. Instead, Sintonen teaches adjusting the signal levels into an analog-to-digital converter (ADC), in view of the level of interference in the signal and the ADC's operating voltage.

Third, as a further obvious error in the rejection, the rejection arguments do not discuss how Sintonen is used in the combination (nor do they discuss Fong), but rather state that "[i]t would have been obvious to one of ordinary skill in the art at the time of the invention to modify **the combination** to include the teachings of Lakkakorpi in order to provide a more reliable measurement on the load on which to base changes [sic] getting a wider margin of

measurements rather than a single measurement which could be a reading where a power spike or fallout occurs giving a false reading." (Emphasis added.) The "combination" of references to which Lakkakorpi's teachings are to be added is unclear. Is it Corazza and Sintonen, or something else? In any case, neither Corazza, nor Fong, nor Sintonen, alone or in any combination, teach or suggest the claimed power headroom thresholds, or the adjustment thereof based on reverse link load indications.

Nor does Lakkakorpi actually teach or suggest the limitations at issue in claims 8, 9, 19, and 20. Lakkakorpi's Fig. 5 shows an equation for calculating a link load using a weighting parameter for smoothing. (See paragraphs [0041] and [0042] of Lakkakorpi.) These teachings regarding a weighted, running calculation of overall loading have nothing to do with claims 8, 9, 19, and 20. For example, claim 8 stipulates that the mobile station of claim 1 (through claims 4 and 7) calculates a load tracking value based on two or more periodic load indications received from a base station, and determining the amount by which to adjust its power headroom threshold as a function of the load tracking value.

With the above in mind, the obviousness rejections of claim 8, 9, 19, and 20 misidentify the references on which the rejections are presumably based. Or, if they are correctly stated, the rejections are directly inconsistent with the combination of references relied upon to reject the corresponding independent claims. And, further, to the extent that the rejections are correctly stated, they rely on Sintonen, which plainly does not teach anything relevant to the claim limitations at issue, and which was at the heart of the previous rejections, which the Patent Office declined to pursue on appeal.

Claims 24 and 25 are not obvious over Corazza in view of Sintonen and Raaf

Claims 24 and 25 are independent mobile station method and apparatus claims, respectively. For reference, claim 24 stipulates a method of adjusting a power headroom

threshold in a mobile station, including counting the number of times the mobile station is power limited for a retransmission of a frame, and adjusting a power headroom threshold of the mobile station based on the count.

Although the rejection heading indicates that Sintonen and Raaf are combined with Corazza to make the rejections, the detailed arguments are silent with respect to Sintonen, and instead discuss Fong. These errors, much like the errors made in the rejection of claims 8, 9, 19, and 20, make the grounds of rejection wholly unclear and complicate Applicant's response.

In any case, the rejections fail because they rely on clear errors in factual finding. For example, Fong's messages from the base station to the mobile station do not cause changes in power headroom at the mobile station; rather, they set trigger points for which changes in the power headroom at the mobile station triggers it to generate and send power-related information by way of reverse request messages. For example, the REV_PDCH_POWER_HEADROOM_DECREASE message tells the mobile station to generate a new power report if the mobile station's power headroom decreases by more than the specified amount—the message does not cause or set the actual change in power headroom.

Further, Raaf in relevant part teaches a mobile station initiating a communication to a network, wherein it incrementally ramps up the power of its initiating preamble transmission if the network does not acknowledge the preamble transmission. Incrementally bumping up the initial transmit power of a mobile station for initial communications is not the same thing as a mobile station that operates with a defined power headroom threshold and adjusts that threshold based on counting the number of retransmissions of a frame. Claims 24 and 25 are amended much like claims 1 and 14, to further emphasize this point.

Closing

Applicant believes that the above arguments, in combination with the evidence of record in the instant application, demonstrate that the Patent Office has not established a *prima facie* case of obviousness with respect to any of the claims. Accordingly, while Applicant appreciates the indications of allowable subject matter in certain dependent claims, Applicant submits that all claims pending after entry of this response are patentable over the cited references. Favorable reconsideration as such is respectfully requested, and the undersigned would welcome the opportunity to discuss this case with the examiner by telephone.

Respectfully submitted,
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